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ABSTRACT

Forty second and third grade children identified by their teachers as aggressive were randomly assigned to a child problem solving skills training (PSST) or teacher consultation. PSST consisted of 20 45-minute sessions of three to five children, held twice weekly at school. Teacher consultation involved four 30-minute individual sessions. Posttreatment effects were investigated in a 2 (group) by 2 (time) factorial design. Dependent measures included classroom observations, parent and teacher behavioral ratings, sociometric measures, measures of social-cognitive skills, and self-concept. Both interventions resulted in improvement at posttreatment in peer ratings of social competence, teacher ratings of aggression, classroom on-task behavior, and parent ratings of externalizing problems. Improvement in social-cognitive skills mediated behavior improvement for PSST children only. Children whose mothers reported more accepting attachment histories showed the most behavioral improvement. Follow-up data consisting of teacher and parent behavior ratings were completed 12 months post-intervention and found no group differences. (Author)

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Effectiveness of Problem Solving Training and Teacher Consultation with Aggressive Children

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ABSTRACT

Forty second and third grade children identified by their teachers as aggressive were randomly assigned to a child problem solving skills training (PSST) or teacher consultation. PSST consisted of 20 45-minute sessions of three to five children, held twice weekly at school. Teacher consultation involved four 30-minute individual sessions. Posttreatment effects were investigated in a 2 (group) by 2 (time) factorial design. Dependent measures included classroom observations, parent and teacher behavioral ratings, sociometric measures, measures of social-cognitive skills, and self-concept. Both interventions resulted in improvement at posttreatment in peer ratings of social competence, teacher ratings of aggression, classroom on-task behavior, and parent ratings of externalizing problems. Improvement in social-cognitive skills mediated behavior improvement for PSST children only. Children whose mothers report more accepting attachment histories showed the most behavioral improvement. Follow-up data consisting of teacher and parent behavior ratings were completed 12 months post-intervention and found no group differences.

The purposes of this study were to a) investigate the relative effectiveness of a child-directed (i.e., problem-solving training) and teacher-directed (i.e., teacher consultation) intervention with second and third grade children identified by teachers as aggressive and to b) explore the role of parental attachment on children's responsiveness to the interventions.

Participants

The study was completed in three elementary schools in a small city in the Southwest. All second and third grade teachers were asked to nominate three or four children from their classrooms who best fit an aggressive description. The schools were racially diverse, with 49% White-Non-Hispanic, 27% Hispanic, 23% African-American, and 1% Asian. Of the 32 teachers available to make nominations, 25 teachers nominated a total of 57 children as having problems with aggressive behavior. Letters were sent to parents explaining the program and requesting consent for both child and parent participation.

Teachers completed the School Behavior Checklist (SBCL; Miller, 1977) for each of the 51 children for whom consent was obtained. All these children met the inclusionary criteria of scoring above the 84th percentile on either the aggression subscale or the hostile isolation subscale of the SBCL. Children were randomly assigned to either the Teacher Consultation (N=25) or the problem solving skills training (PSST) (N=26) conditions, with the constraint that children in the same family or classroom were assigned to the same condition. Four students attritted from the teacher consultation group (two due to their teacher declining to participate and two due to moving). Two students attrited from PSST due to moving, and 5 students were excluded from outcome analyses because their parents completed an optional parent training intervention. Thus, these five children received a different and more comprehensive intervention. A total of 21 children in teacher consultation and 19 children in PSST completed the programs and posttreatment assessment. The ethnic composition was White-Non-Hispanic (18), African-American (18), and Hispanic (4). The children were evenly divided between grades, and the average age was 8.52 years (SD=.72 years). A majority (80%) were male.

Design

Posttreatment effects were investigated in a 2 (treatment group) X 2 (time) factorial design . Follow-up data consisting of parent and teacher ratings were collected one year post-intervention and analyzed with analysis of covariance, using the appropriate pretreatment score as the covariate.

Instrumentation

The following measures were administered at both pretreatment and posttreatment:

Classroom Observations	Breyer's Behavior Observation Schedule for Pupils and Teachers (Breyer & Calchera, 1971)
Parent Ratings	Child Behavior Checklist (Achenbach & Edelbrock, 1983)
Teacher Ratings	School Behavior Checklist (Miller, 1977)
Sociometric Assessment	Revised Class Play (Masten, Morison, & Pelligrini, 1985), modified
Social cognitive skills	Social Cognitive Assessment Profile (Hughes, 1992).
Perceived Social Acceptance	Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (Harter & Pike, 1984) for second graders and Self Perception Profile for Children (Harter, 1985) for third grade. Only social acceptance scale used from each version.

Only teacher and parent ratings and classroom observations were collected at the 12-month follow-up.

The following measures were administered at pretreatment only, in order to investigate parent characteristics that predict intervention responsiveness:

Maternal Attachment Style	Revised Adult Attachment Scale (Collins & Read, 1990)
Maternal attachment history	Adult Parental Acceptance-Rejection Questionnaire (Rohner, 1986)
Maternal depression	Beck Depression Inventory (Beck, Rush, Shaw, & Emery, 1979)

Intervention Procedures

All interventions were delivered between January and mid-April, 1992. Children in the PSST groups attended two 45-minute group training sessions each week during the school day for 10 weeks. The leaders for the PSST groups followed a detailed manual.

The same leaders for PSST provided the teacher consultation. Consultants met with teachers individually for four 30-minute sessions over a period of 6 weeks, ending at the same time as the PSST and PT. Consultants provided behavior consultation according to Kratochwill and Bergan (1990).

All PSST and consultation sessions were audiotaped for purposes of establishing intervention integrity. Analysis of a random sample of sessions found 91% of intended activities for each session were implemented, using a manipulation checklist.

Results

Unless noted to the contrary, the following analyses are based on subjects in the consultation and PSST conditions (eliminating those five subjects who received PSST plus the parent training). Preliminary multivariate analyses of variance (MANOVAs) revealed no statistically significant differences between the groups at pretreatment on measures completed by parents, teachers, or children. ANOVAs for continuous subject and demographic variables revealed one significant pretreatment difference for age, with the PSST group being older than the consultation group. The correlation coefficients between age and dependent variables at pretest revealed no significant relationships; therefore age was not used as a covariate in subsequent analyses. Chi-square tests for categorical variables (single parent status, gender, race) revealed no pretreatment differences between groups.

Posttreatment Effects

Analyses initially consisted of a repeated-measures MANOVA for each of the five sets of dependent variables: teacher-rated aggression (SBCL aggression, hostile isolation subscores, and total dysfunction); peer perceptions of competence (standardized ;withdrawn and leadership scores), parent-rated aggression (CBCL aggression, externalizing, and total problems score); classroom observations (observations of on-task, passive off-task, and disruptive-aggressive off-task); and social-cognitive skills (hostile attributions, self-efficacy for assertive solutions, number of solutions, and percentage of aggressive solutions). Analyses of variance (ANOVAs) were used to analyze treatment effects on self perception of peer acceptance and peer ratings of aggression, as these variables were considered to be conceptually distinct from other variables.

Table 1 presents pretreatment and posttreatment means and standard deviations for each treatment group on dependent measures (including the five children who received PSST plus parent training and who are excluded from the current analyses). The number of subjects in each group who received each measure at each time is given in parentheses.

Repeated measures MANOVA for teacher-rated aggression revealed a significant effect for treatment condition $F(3,36)=3.00$, $p < .05$ and a significant treatment by time interaction $F(3,36)=2.80$, $p=.05$. Children in the consultation condition improved more than children in the PSST condition on teacher-rated aggression.

The repeated measures MANOVA for peer perception of competence revealed a trend for time $F(2,36)=2.70$, $p=.08$. Both groups improved on peer ratings of social competence (based on peer ratings standardized within classrooms).

A significant effect for time was found for the MANOVA for

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parent-rated aggression $F(3,17)=7.90$, $p<.001$, with both groups improving from pretreatment to posttreatment.

A significant effect for time was also found for classroom observations $F(3,35)=7.54$, $p<.001$, with both groups improving.

No main or interaction effects were found for the MANOVA for social-cognitive skills or for the ANOVAs for peer-rated aggression or perceived social acceptance.

Follow-up Analyses

One year post-intervention, 28 children's teachers (who were blind to subject status) completed the SBCL and 27 parents completed the CBCL. Chi-square analyses revealed that subjects in the consultation and PSST groups wewre euqally represented at follow-up (i.e., subject attrition was equally across groups). Based on the small sample size, analysis of covariance rather than MANOVA wa used to assess follow-up effects, and only two scores from the SBCL (aggression and total dysfunction) and two scores from the CBCL (aggression and total problem) were analyzed. Pretest scores were used as covariates in the four seprate ANCOVAs. No group differences were found.

Treatment Mechanisms

Separate multiple regression analyses were employed to determine the relationship between improvement on social cognitive skills and improvement on teacher-rated aggression for children provided PSST (including the five children provided PSST plus parent training) and children in the consultation condition. As expected, improvement in teacher-rated aggression was predicted by changes in social cognitive measures for children receiving PSST (multiple $R=.62$, $p<.05$) but not for children in teacher consultation.

Individual Differences in Responsiveness to the Interventions

No significant correlations were found between demographic variables or pretreatment scores on dependent measures and improvement in teacher-rated aggression for any groups or the combined group.

Separate multiple regression analyses examined whether the mother's attachment history (total score on the PARQ) and the mother's attachment style (AAS Close scores) combined would predict improvement on teacher-rated aggression, parent-rated aggression, peer nominations as aggressive, and classroom observations of on-task behavior for the consultation and PSST only groups. Due to the small number of subjects in each group, and the relatively large number of variables if the three AAS dimensions were used in the multiple regression analyses, the Close dimension of the AAS was chosen to be the sole AAS dimension used with the total PARQ score as a way of maximizing power. Evidence from discriminant

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function analysis (Collins & Read, 1990) suggests that variation on Close contributes most to assignment to different attachment classifications.

For the consultation group, the combined model of mother's total PARQ and Close scores was a good predictor of improvement in teacher-rated aggression, $F = 11.92$ (2,12), $p = .001$, explaining 66.5% of the variance. A trend was found for the same model predicting improvement on parent-rated aggression, $F = 3.85$ (2,9), $p = .06$, in the consultation group, but the combined variables did not predict improvement in peer-nominations as aggressive or in on-task behavior in the classroom. An examination of the simple correlations between the mother's total PARQ score and Close scores and the teacher, mother, peer, and observational measures of improvement (see Table 2) revealed that consultation mothers with high PARQ scores (reflecting more perceived rejection and less perceived acceptance) had children who improved less on the teacher-rated SBLC aggression scale ($r = -.76$, $p < .01$). Consultation mothers with higher Close scores (reflecting comfort with getting close to others) had children who improved less on the mother-completed CBCL aggression scale ($r = -.65$, $p < .05$).

Separate multiple regression analyses were performed for the PSST only group with the mother's combined total PARQ and AAS Close scores predicting teacher-rated aggression, mother-rated aggression, peer nominations as aggressive, and observations of on-task behavior in the classroom. Again, the two maternal attachment variables combined predicted teacher-rated improvement on the SBCL aggression scale, F (2,11) = 7.36, $p < .01$. The model did not predict improvement on mother-rated aggression. Trends were found for peer nominations, F (2,11) = 2.94, $p = .09$, and classroom observations of on-task behavior, F (2,10) = 3.60, $p = .066$. Examination of the simple correlations in Table 2 indicates that mother's attachment history (total PARQ) was related to improvement in teacher-rated aggression ($r = -.64$, $p = .01$). Mothers who reported recollections of higher levels of rejection and less acceptance from their mothers had children who responded less positively to PSST on a teacher-completed measure of aggression. Mothers' attachment history was also related to improvement in on-task behavior in the classroom ($r = .62$, $p < .05$). However, this correlation was not replicated across groups. A trend was present for Mother's Close score in relation to improvement on peer nominations as aggressive ($r = -.49$, $p = .07$).

Discussion

Given the common finding that aggressive children, in the absence of treatment, tend to worsen over time (Bierman et al., 1987; Kazdin et al., 1987), these results support the effectiveness of both treatments. The finding that improvement in children's social-cognitive skills mediated behavioral improvement for children in the PSST condition provides additional support for the efficacy of PSST. The only dependent variable on which a treatment X time interaction was found was teacher ratings of aggression,

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which found that children in the consultation group improved more from pretreatment to posttreatment. However, this relative superiority was not found one year post intervention.

The moderate success of the problem-solving and consultation interventions with teacher-identified aggressive children suggests both consultation and PSST could be a productive part of a comprehensive, integrated intervention to prevent increased conduct problems in aggressive children.

Findings on the role of maternal attachment variables in child responsiveness to treatment are among the most interesting in this study. Attachment history was a strong predictor of treatment effectiveness on a) teacher ratings of improvement in aggressive behavior for both the consultation and problem solving groups, and on b) on-task behavior for the problem-solving group. Mothers with more negative attachment histories in both treatment groups had children who responded less favorably to treatment on the teacher measure of aggression. One explanation for this finding is that mothers who experienced more harsh and less accepting parenting behavior during their own childhoods have developed mental representations or internal working models of the parent-child relationship that will determine to some extent the quality of the child-rearing environment they subsequently provide for their children.

Mothers from the combined groups who reported more comfort with being close to others and felt more able to depend on others perceived their children to show less improvement in aggressive behavior, and that higher levels of anxiety over relationships predicted mothers' perceptions of more child improvement. This finding seems to contradict the finding that negative attachment histories are associated with less improvement on teacher-rated aggression. However, if the relationship is not looked at so much as a relationship between parent attachment style and child improvement, but as a relationship between mother's perceptions of self in relation to others and the mother's perception of her child's behavior, there may be a theoretically sound explanation for the apparent contradictory evidence. However, additional research on attachment styles and attachment histories of mothers of aggressive children is needed to explain these findings. It may be that a subset of parents of aggressive children perceive their own mothers as providing inadequate care and their children as uncooperative and difficult to manage but perceive themselves as able to be close to others and not experiencing anxiety in relationships. This "I'm okay, you're not okay" perception of relationships may be most predictive of child non-responsiveness to school-based interventions. These children and their parents may benefit more form a relationship-enhancement, emotionally-supportive intervention than from a skill-oriented or behavioral intervention.

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Table 1

Dependent Measures by Group at Pretest and Posttest

Measure	Pretreatment M	SD		Posttreatment M	SD	
			Consultation			
			n			n
Classroom Observation			(20)			(21)
% Off-Task	.24	.18		.06	.05	
% Disruptive	.03	.05		.01	.02	
% On-Task	.73	.19		.93	.06	
Teacher Ratings-SBCL			(21)			(21)
Aggression	81.1	11.7		74.8	12.2	
Total Disability	66.0	12.0		64.2	9.4	
Perceived Peer Acceptance-Harter	3.05	.87	(21)	3.19	.81	(20)
Mother Ratings-CBCL			(16)			(13)
Externalizing	62.5	9.7		58.2	9.3	
Total	60.8	10.3		58.0	10.35	
Aggression	63.1	11.4		58.38	8.37	
Parent Daily Report	7.28	4.17	(13)	6.75	5.0	(11)

Table continues.

Table 4 continued

Dependent Measures by Group at Pretest and Posttest

Measure	Pretreatment M	SD	n	Posttreatment M	SD	n
			Problem Solving Skill Training Only			
Classroom Observation			(19)			(18)
% Off-Task	.21	.12		.12	.12	
% Disruptive	.04	.05		.02	.04	
% On-Task	.75	.14		.87	.15	
Teacher Ratings-SBCL			(19)			(18)
Aggression	78.89	13.83		81.11	10.62	
Total Disability	71.32	10.63		72.28	8.46	
Perceived Peer Acceptance-Harter	3.01	.75	(19)	2.98	.69	(19)
Mother Ratings-CBCL			(14)			(8)
Externalizing	57.86	12.18		53.75	9.8	
Total	61.36	10.19		54.63	12.11	
Aggression	60.36	9.06		55.5	10.28	
Parent Daily Report	6.42	3.18	(9)	5.06	2.65	(6)

Table continues.

Table continued.

Dependent Measures by Group at Pretest and Posttest

Measure	Pretreatment M	SD	n	Posttreatment M	SD	n
	Problem Solving Skills Training and Parent Training					
Classroom Observation			(5)			(5)
% Off-Task	.24	.21		.04	.04	
% Disruptive	.03	.05		.00	.01	
% On-Task	.73	.23		.96	.04	
Teacher Ratings-SBCL			(5)			(5)
Aggression	72.2	9.4		74.0	7.1	
Total Disability	61.4	9.1		62.6	6.2	
Perceived Peer Acceptance-Harter	2.84	1.07	(5)	2.6	.78	(5)
Mother Ratings-CBCL			(5)			(5)
Externalizing	56.6	9.0		53.8	13.9	
Total	54.8	8.5		48.8	8.9	
Aggression	57.2	6.7		57.2	9.6	
Parent Daily Report	5.45	2.83	(4)	3.2	2.85	(4)

Table continues.

Table continued.

Dependent Measures by Group at Pretest and Posttest

Measure	Pretreatment M	Pretreatment SD	Posttreatment M	Posttreatment SD	
			Consultation		
Social Cognition			(21)		(20)
% Hostile Attributions	.35	.24	.30	.30	
Number of Solutions	15.7	5.13	15.65	4.76	
% Aggressive Solutions	.12	.15	.13	.19	
Self Efficacy Assertion	16.37	5.55	16.05	5.09	
Peer Ratings			(20)		(21)
Aggression	1.12	.87	.85	.92	
Leadership	-.09	.75	-.46	.61	

Table continues.

Table continued.

Dependent Measures by Group at Pretest and Posttest

Measure	Pretreatment M	Pretreatment SD	Posttreatment M	Posttreatment SD	
	Problem Solving Skill Training Only				
Social Cognition			(19)		(19)
% Hostile Attributions	.33	.33	.34	.27	
Number of Solutions	16.95	6.40	19.42	4.93	
% Aggressive Solutions	.13	.14	.15	.14	
Self Efficacy Assertion	16.95	5.21	19.00	4.48	
Peer Ratings			(19)		(19)
Aggression	.94	.88	.78	.02	
Leadership	-.47	.66	-.62	.50	

Table continues.

Table continued.

Dependent Measures by Group at Pretest and Posttest

Measure	Pretreatment M	Pretreatment SD	Posttreatment M	Posttreatment SD	
	Problem Solving Skills Training and Parent Training				
Social Cognition			(5)		(4)
% Hostile Attributions	.26	.15	.20	.18	
Number of Solutions	18.40	5.41	19.40	4.92	
% Aggressive Solutions	.10	.14	.21	.23	
Self Efficacy Assertion	14.8	3.6	15.6	5.5	
Peer Ratings			(5)		(4)
Aggression	1.02	.90	.90	1.13	
Leadership	.16	1.22	-.40	.49	

Table 2

Correlations of PARQ Total and AAS Dimensions with Improvement

	Improvement Scores			
	SBCL (Teacher)	CBCL (Mother)	RCP (Peer)	On-Task (Classroom)
Consultation				
PARQ Total	-.76***	.48	.28	-.29
n	(15)	(12)	(14)	(15)
AAS Close	.22	-.65*	-.19	-.03
n	(17)	(13)	(16)	(16)
AAS Depend	.31	-.59*	-.20	.05
n	(17)	(13)	(16)	(16)
AAS Anxiety	-.44[t]	.57*	.12	.04
n	(17)	(13)	(16)	(16)
Problem-Solving Skills Training Only				
PARQ Total	-.64*	.21	-.26	.62*
n	(14)	(8)	(14)	(13)
AAS Close	-.31	-.52	-.49[t]	.25
n	(14)	(8)	(14)	(13)
AAS Depend	.25	-.41	-.16	-.25
n	(14)	(8)	(14)	(13)
AAS Anxiety	.00	.07	.16	.23
n	(14)	(8)	(14)	(13)

*p≤.05, **p≤.01, ***p≤.001, [t]=nonsignificant trend

Table continues.

Table continued.

Correlations of PARQ Total and AAS Dimensions with Improvement

	All Subjects			
	SBCL (Teacher)	CBCL (Mother)	RCP (Peer)	On-Task (Classroom)
PARQ Total	-.54***	.26	-.02	.14
	n (34)	(25)	(32)	(33)
AAS Close	.00	-.58**	-.37*	.18
	n (36)	(26)	(34)	(34)
AAS Depend	.31[t]	-.45*	-.19	.04
	n (36)	(26)	(34)	(34)
AAS Anxiety	-.30[t]	.34[t]	.14	.04
	n (36)	(26)	(34)	(34)

*p≤.05, **p≤.01, ***p≤.001, [t]=nonsignificant trend